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FLOOD INSURANCE STUDY

TOWN OF EASTVALE, TEXAS
DENTON COUNTY

SEPTEMBER 18, 1987

Federal Emergency Management Agency

COMMUNITY NUMBER - 481517

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NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program (NFIP) have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

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FLOOD INSURANCE STUDY
TOWN OF EASTVALE, DENTON COUNTY, TEXAS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the Town of Eastvale, Denton County, Texas, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the state (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were performed by the Fort Worth District of the U. S. Army Corps of Engineers (COE) for the Federal Emergency Management Agency (FEMA) during the preparation of the Flood Insurance Study for the unincorporated areas of Denton County. The Denton County study was completed in September 1984.

1.3 Coordination

On July 14, 1986, the Town of Eastvale was notified by FEMA of the initiation of a Flood Insurance Study for the community.

On October 27, 1986, the results of the study were reviewed at a final Consultation and Coordination Officer's (CCO) meeting attended by representatives of FEMA and the Town of Eastvale.

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2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the Town of Eastvale, Denton County, Texas. The area of study is shown on the Vicinity Map (Figure 1).

Lewisville Lake was studied by detailed methods for its entire shoreline within the community. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction.

2.2 Community Description

The Town of Eastvale is located in the southeastern portion of Denton County, approximately 16 miles southeast of the City of Denton, in north central Texas. It is bordered by the unincorporated areas of Denton County to the north, west, and south; and the Cities of Frisco and The Colony to the east.

The climatological data for the City of Fort Worth are considered indicative of the conditions prevailing in the region. The average annual rainfall was 32.20 inches for the last 10-year period. The maximum and minimum annual rainfall occurring during the last 57 years was 51.03 inches in 1932 and 17.91 inches in 1921, respectively. The mean relative humidity is 65 percent, and the average annual temperature is 65.8 degrees Fahrenheit (Reference 1).

2.3 Principal Flood Problems

Generally, major floods experienced in the vicinity of Eastvalle are produced by heavy rainfall from frontal storms that occur in the spring and summer. Major flooding can be produced by the intense rainfall usually associated with localized thunderstorms. These thunderstorms can occur at any time of the year but are more prevalent in the spring and summer.

2.4 Flood Protection Measures

Lewisville Lake is a manmade reservoir that has significantly altered flood flows in the area. Lewisville Lake has 325,700 acre-feet of flood storage.

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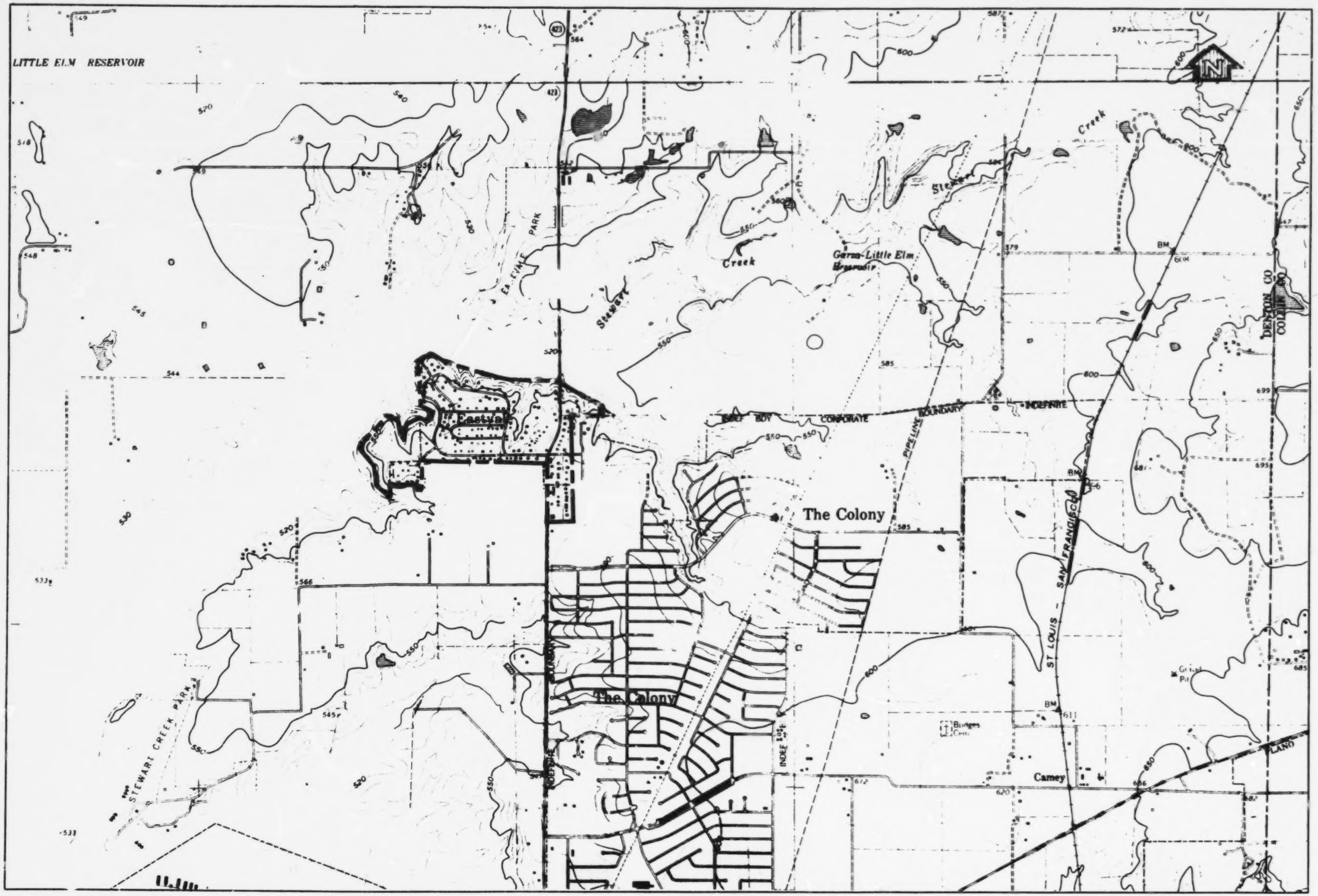

APPROXIMATE SCALE
6000 FEET
4000
2000
0
2000

VICINITY MAP

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF EASTVALE, TX
(DENTON CO.)

FIGURE 1

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3.0 ENGINEERING METHODS

For the flooding source studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1 percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic and Hydraulic Analyses

Analyses were carried out to establish the peak elevation-frequency relationships for the flooding source studied in detail affecting the community.

The hydrologic analysis for this study was obtained from the Flood Insurance Study for the unincorporated areas of Denton County (Reference 2). Stillwater elevations for Lewisville Lake were taken from a pool elevation-frequency curve for the lake (with Ray Roberts Dam in place) based on a period of record analysis using daily flows from 1940 to 1969.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD).

The stillwater elevations for the 10-, 50-, 100-, and 500-year floods have been determined for Lewisville Lake and are summarized in Table 1, "Summary of Stillwater Elevations."

TABLE 1 - SUMMARY OF STILLWATER ELEVATIONS

FLOODING SOURCE AND LOCATION	ELEVATION (feet) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
LEWISVILLE LAKE				
At the dam	529.5	535.0	537.0	541.0

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4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100- and 500-year floodplain boundaries and 100-year floodway to assist communities in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1 percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2 percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For the flooding source studied in detail, the 100- and 500-year floodplain boundaries have been delineated using topographic maps at a scale of 1:24,000 with a contour interval of 10 feet (Reference 3).

The 100- and 500-year floodplain boundaries are shown on the Flood Insurance Rate Map (Exhibit 1). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zone AE), and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

4.2 Floodways

The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights.

The concept of floodway does not apply to lacustrine flooding. Therefore, no floodway was computed or delineated for this study.

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

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Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analyses are shown within this zone.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

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Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100- and 500-year floodplains. Floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

7.0 OTHER STUDIES

Flood Insurance Studies for the unincorporated areas of Denton County and the City of The Colony are currently being prepared (Reference 2 and 5). The results of those studies will be in exact agreement with the results of this study.

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A Flood Insurance Study for the City of Frisco has been published (Reference 4). The results of this study are in exact agreement with the results of that study.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting FEMA, the Natural and Technological Hazards Division, Federal Regional Center, 800 North Loop 288, Denton, Texas 76201.

9.0 BIBLIOGRAPHY AND REFERENCES

1. U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Environmental Data Service, Monthly and Annual Climatological Data of State (Texas), Asheville, North Carolina, National Climatic Center.

2. Federal Emergency Management Agency, Flood Insurance Study, Unincorporated Areas of Denton County, Texas (Unpublished).

3. U. S. Department of the Interior, Geological Survey, 7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 10 Feet: Lewisville, East, Texas, 1960, Photorevised 1981.

4. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Frisco, Collin County, Texas, Washington, D. C., June 18, 1980.

5. Federal Emergency Management Agency, Flood Insurance Study, City of The Colony, Denton County, Texas (Unpublished).

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